

**REMARKS**

**Summary Of The Office Action & Formalities**

Claims 1-12 are all the claims pending in the application. By this Amendment, Applicants are amending claims 1, 3, 9, and 11, and adding new claims 13-22. No new matter is added.

Applicants thank the Examiner for acknowledging their claim to foreign priority and for confirming that the certified copy of the priority document was received.

Applicants also thank the Examiner for initialing the references listed on form PTO-1449 submitted with the Information Disclosure Statement filed on May 29, 2001.

Applicant also thanks the Examiner for approving the formal drawings filed with the application on May 29, 2001.

The Examiner has objected to claims 3<sup>1</sup> and 11, because these claims include the phrase "preferably." Applicants are amending these claims to overcome this objection.

Claims 9-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants are amending claim 9 to be in independent form, and to recite a heat removal system instead of heat removal means, so that this element of the claim is not construed under 35 U.S.C. § 112, paragraph six.

The prior art rejections are summarized as follows:

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<sup>1</sup> The Examiner appears to have inadvertently referred to claim 2 and not claim 3.

1. Claims 1-8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hesselborn (USP 6,014,313).

Applicants respectfully traverse.

**Claim Rejections - 35 U.S.C. § 103**

*1. Claims 1-8 In View Of Hesselborn.*

In rejecting claims 1-8 in view of Hesselborn, the grounds of rejection state that

Regarding claims 1-4, Hesselborn teaches an electronic assembly (shown at least in fig. 1-2) comprising at least a first integrated electronic module 3, the first module including at least one interconnection means for optical connection to a printed circuit card or to a second electronic module (see fig. 2, items electronic chips/modules interconnections and col. 11, lines 20-35), the assembly including a heatsink-plate 19 and heat removal means (liquid) for removing heat from said module to the heatsink-plate (see col. 10, lines 35-39; wherein the heat exchange between the electrical modules and coolant 19 takes place through liquid channels/pipes, see col. 11, lines 6-19), and wherein the heatsink-plate is independent of the interconnection means of the first module (see col. 10, lines 43-59); Hesselborn further teaches wherein the interconnection means includes an optical fiber (col. 11, lines 31-35); wherein the optical fiber is included in a printed circuit card, and wherein a first end of the fiber is mounted in register with an optical contact of the first module by means of balls bonded to the module and disposed with precision relative to metal areas of the printed circuit card (see fig. 2-3, items connecting balls, see col. 7, lines 30-35).

However, Hesselborn does not specifically teach wherein the above heatsink-plate is soleplate, the interconnection means includes a flexible printed circuit, and the end of the optical fiber preferably includes an etched lens. It is obvious to a person of ordinary skill in the art when the invention was made to modify Hesselborn's optoelectronic elements with well known analogously functional elements (such as references such as GB 2322203, provided by applicant, and USP 4,729,296, USP 4,836,637 and USP 5,428,190 provided herein as prior art) in order to assemble

an entire plane of the 3-dimensional multichip module easily and since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bernis Co.*, 193 USPA 3, and since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

Regarding claim 5, Hesselborn further teaches the interconnections means includes a printed circuit card portion connected to the first module and a second printed circuit card portion connected to the second module, the two cards being interconnected by a second interconnection means (see col. 11, lines 20-34).

Regarding claim 6, Hesselborn further teaches wherein the two cards are secured to each other and the second interconnection means is constituted by tracks interconnecting the two card portions (shown in at least fig. 4).

Regarding claim 7, the arguments presented in rejection of claim 4 is analogous in rejection of claim 7.

Regarding claim 8, Hesselborn further teaches wherein the interconnection means comprise a contact matrix, the contact matrix being mounted, for example, between the module and the printed circuit card (shown in at least fig. 4, items matrix interconnections).

Office Action at pages 3-5. Applicants respectfully disagree.

Claim 1 recites "heat removal means for removing heat from said module to the soleplate, and wherein the soleplate is independent of the interconnection means of the first module." Therefore, claim 1 includes a means-plus-function clause that must be construed in

accordance with the broadest reasonable interpretation that an examiner may give means-plus-function language is that statutorily mandated in [section 112] paragraph six.

Accordingly, the PTO may not disregard the structure disclosed in the specification corresponding to such language when rendering a patentability determination.”). Hesselbom clearly does not teach or suggest a mechanism that is similar in structure, materials, or function to that of the heat removal means for removing heat from said module to the soleplate of the present invention, when the specification of the present invention is properly considered. To further clarify this distinction, Applicants are amending claim 1 to recite that the heat removal means removes heat from the module via a first face of said module to the soleplate, and that “the first face of said module is distinct from a second face of said module that contacts said soleplate.”

In view of at least the foregoing distinctions, the Examiner is kindly requested to reconsider and withdraw the rejection of claims 1-8.

**New Claims**

For additional claim coverage merited by the scope of the invention, Applicants are adding new claims 13-22. Claims 13-21 are believed to be allowable at least by reason of their respective dependencies. Claim 22 is similar to claim 9, but omits the particular recitation of the interconnection means for optical connection.

An Excess Claim Fee Payment Letter with fee are submitted herewith.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

**AMENDMENT UNDER 37 C.F.R. § 1.111**

US Application No. 09/865,720

**Q64636**

Applicants hereby petition for any extension of time which may be required to maintain the pendency of this case, and any required fee, except for the Issue Fee, for such extension is to be charged to Deposit Account No. 19-4880.

Respectfully submitted,



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WASHINGTON OFFICE



**23373**

PATENT TRADEMARK OFFICE

Date: May 27, 2003

APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

**The claims are amended as follows:**

1. (Amended) An electronic assembly comprising at least a first integrated electronic module, the first module including at least one interconnection means for optical connection to a printed circuit card or to a second electronic module, the assembly including a soleplate and heat removal means for removing heat from said module via a first face of said module to the soleplate, and wherein the soleplate is independent of the interconnection means of the first module; and wherein the first face of said module is distinct from a second face of said module that contacts said soleplate.

3. (Amended) An assembly according to claim 2, wherein the optical fiber is included in a printed circuit card, and wherein a first end of the fiber is mounted in register with an optical contact of the first module by means of balls bonded to the module and disposed with precision relative to metal areas of the printed circuit card[, the end of the optical fiber preferably including an etched lens].

9. (Amended) [An assembly according to claim 1.] An electronic assembly comprising at least a first integrated electronic module, the first module comprising at least one interconnection means for optical connection to a printed circuit card or to a second electronic module, the assembly further comprising a soleplate and a heat removal system that removes heat from said first module to the soleplate, and wherein the soleplate is independent of the interconnection means of the first module; wherein the heat removal system comprises [means comprise] a first segment and a second segment, the first segment connecting [the specialist] an integrated circuit of the first module to a first face of the first module, [this] the first face being distinct from a second face making contact between the first module and the soleplate, and the second segment connecting said second face to the soleplate.

11. (Amended) An assembly according to claim 9, wherein the second segment comprises a closed heat pipe containing a fluid[, preferably water and/or alcohol].

**Claims 13-22 are added as new claims.**